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The Economics of European Air Transport, by Stephen Wheatcroft

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BOOK REVIEW

THE ECONOMICS OF EUROPEAN AIR TRANSPORT. By Stephen Wheatcroft. 1956. Harvard University Press, Cambridge, Mass. PP. xxii, 358. $6.00.

Air transport in Europe is not as developed as it could be, given present population and standard of living. According to a recent study by the Air Research Bureau, the number of passenger miles per inhabitant and per $1,000 of national income is much less in Europe than in all other parts of the world, except India.[1]

Only very recently has attention been given to European air transport. Because of the political divisions of the continent, air services have developed independently to and from each European country. Every airline in Europe has given its attention to inter-continental operations and to spreading its business throughout the world for reasons of national prestige. The airlines have considered their European services as feeders of their long-haul, inter-continental routes, and, in the hard competition of the world air market, the cooperation between European airlines to serve the local intra-European market has never been considered. This lack of interest has been so great that complete and exact data on air transport operations and traffic flows in Europe does not exist. However, in 1954, a European Civil Aviation Conference met in Strasbourg, and the Air Research Bureau was created as a permanent organism working on the question of European air transport.

In this rather recent field of study, Wheatcroft's book should be useful to any person interested in the future of European air transport, and of great help to the managements of the different airlines in Europe, since it proposes solutions to present problems. These solutions are applicable immediately in most cases, or they can become the basis of discussions and action at the European Civil Aviation Conference.

The political divisions of Europe and the lack of international organization are not the only reasons for the difficulties of air transport in Europe. Other reasons are to be found in the permanent and structural features of the European market, and, sometimes, in the policies of the different managements of the airlines.

Of the permanent features, the author emphasizes Europe's small area, especially since the partition due to the Iron Curtain; and, "on this small area, less than half of the United States, there are more than twice as many miles of air routes as there are in the United States." (Page 5.)

Traffic is not evenly distributed on this overexpanded network. There are a small number of very high density air routes, and many sectors of very low traffic density. Another characteristic of this traffic is its short haul nature. "More than 60 per cent of the seats are operated on sectors of less than 300 miles, and more than 60 per cent of the seat miles are provided on sectors less than 400 miles." (Page 3.) The nature of short haul traffic is such that air transport is at a disadvantage compared with surface transport, both from the point of view of operating costs and from the point of view of revenues.

However, Wheatcroft tends to minimize the importance of this unchangeable factor of European air transport. He recognizes the difficulties of short-haul transport, and its special character, but his argument is that these difficulties arise, not from the inherent nature of this sort of operations, but from "an inadequate exploitation and development of the potential advan-

[1] *Intra European Air Transport,* Air Research Bureau Report (Brussels: November, 1953), p. 10.

tages of short-haul traffic." In other words, short-haul traffic has not been studied enough, and its difficulties in Europe have been overrated. Wheatcroft develops the idea that there is a high potential for short-haul traffic, and the solution to the problem lies in the development of a higher intensity of operations on short sectors.

A study of the relationship between size and efficiency of the airlines in the United States and in Europe leads the author to conclude that European airlines carry a sufficient volume of traffic to be able to achieve all the economies of scale in the industry. There are in Europe some very small airlines which, altogether, carry only 5 per cent of the regional traffic. They have an opportunity to gain the advantages of large scale operation by subcontracting in some particular fields, and they have usually done so.

Though the main European airlines do not seem to be at a disadvantage in terms of the size of their operations, the level of operating costs in Europe in 1952 was as much as 62 per cent higher than those for domestic operations in the United States. (For this comparison, only medium-size airlines, comparable to European ones, were taken into consideration.) From the examination of each item of operating costs, the author concludes that the means of reducing operating costs lies in the development of existing routes, i.e. to avoid further extension of the network and to develop more service where the potential demand justifies it.

The need for more intensive operations explains the general direction of the policies of competition and regulation that the author recommends in the second and third parts of his book. The necessity of keeping a certain amount of competition is emphasized. However, in Europe, it has sometimes been suggested that competition may be harmful on routes of very low traffic density, and, in such cases, pooling arrangements may be in the public interest. Competition is necessary and helps to provide the public with the best and cheapest service; however, some regulation is necessary too, since the more airlines there are on any route to share the traffic, the smaller will be the effective traffic flow for each of them. Among more than two competitors, competition may become harmful, and the benefits of competition are achieved as soon as there are two airlines on a route where demand permits adequate load factors. A defect of the European route network is the existence of too many sectors on which there are too many airlines operating in parallel.

The requirements for progress that the author suggests in the last part of the book include an economic framework indicating the lines along which reforms should be made in order to insure a better economic organization. He then gives the plan of the European organization which could be created to deal with the specific problems of European air transport. To achieve a higher intensity of operations, there should be a diminution of restrictive practices which have been adopted in air transport agreements, and this must be accompanied by coordinated regional planning of the air route system. The author suggests various actions which should be taken:

1. Traffic flows should be consolidated along major trunk routes by pruning the route system of those sectors which are not justified by their traffic potential. This would intensify the utilization of the whole system, since higher traffic flows on these major routes would call for larger planes, higher frequencies and higher load factors, bringing a noticeable reduction of unit operating costs, accompanied by a larger utilization of the stations.
2. General principles of the Bermuda agreements should be accepted as a basis of European air transport, with only controls on entry and tariffs, subject to the approval of the various governments, and a control of capacity to be exercised only by the ex-post-facto review procedure of the Bermuda agreement.

3. In order that governments may be fully informed and able to give accurate opinions on tariffs, detailed financial and statistical data about European operations should be collected.
4. Large cost reductions are possible by various measures of joint enterprise among the airlines, and there is a very large field in which cooperation can bring great benefit to the industry without in any way affecting the basic competitive relationship. A system of investment planning could be arranged in which all the airlines would participate to draw up future plans, so that future capacity could be generally matched with the agreed estimate of future traffic. Cooperation in traffic handling, by the organization of joint traffic handling agencies, would permit reduction of some station costs. Each major station or group of stations should be organized on a local basis with an independent manager in charge. There already exist some forms of cooperation, i.e., the Committee of purchasers of Aviation Materials. There are numerous opportunities for further cooperation in air crew training, purchasing of fuel and oil, interchange of aeroplanes and operations of through services. This last form of cooperation is often very favorably viewed, since it would be likely to increase the utilization of planes, which, because of the "spoke pattern" of the European networks, is much lower in Europe than in the United States.
5. Wheatcroft's final recommendation is for a regional organization of European air transport which could be worked out without political integration. This organism would depend on the European Civil Aviation Conference, with a multilateral air agreement. An Air Transport Commission would take care of the different fields of cooperation; this regional organization would be flexible and have complementary relationships with International Civil Aviation Organization and the different concerned governments. A super-national authority would be more efficient, but the organization Wheatcroft proposes could work with the sympathetic agreement of the governments, whose primary interest is to develop a sound system of air transport in Europe.

Throughout the book, a case is made for larger aircraft. This argument seems to be self-contradictory, since the load factors achieved in Europe are somewhat inferior to the ones in the United States. If the load factor is insufficient in a small plane, it will not be any better on a larger plane. The author notes that until now it has been the habit for all airlines to use large planes on long hauls and small planes on short hauls. Actually the main interest has focused for a long time on long-haul planes for numerous reasons, among which are the emphasis on the development of intercontinental routes and the potential air market on three routes. This is the field in which air transport is at its best, the bigger planes having been designed to have the lowest operating costs on long hauls.

On the other hand, from a general transportation standpoint the traffic flow will vary inversely with the length of the haul. (Pages 27-28.) Wheatcroft postulates that there is an optimum frequency to be achieved, beyond which it is more economical to use larger planes than to increase frequency further. The traffic potential on any sector can be evaluated from the population of the pair of cities and the distance between them. (Pages 27-28.) From the analysis made by Wheatcroft, it is indicated that "the traffic potential for the short-haul route of 250 miles ought to justify the use of an aeroplane twice as large in payload as the long-haul routes of over 2000 miles." (Page 29.) So he concludes that there is in Europe an urgent need for a large short-haul plane able to carry its maximum payload on a short range. "A large airplane can be designed for a short optimum range by

giving it a volumetric capacity great enough to carry the maximum load which it is capable of lifting for the short range and also by making its landing gear sufficiently strong to enable it to land safely at this weight." (Page 33.)

The requirement of a larger plane is certainly justified as long as the load factor stays the same, since more passengers can be carried and the unit operating costs are lower. The operation of larger planes in Europe may be open to some criticism. The Air Research Bureau study on the intra-European traffic between 1951 and 1954 indicates that the overall decrease of the load factor on European routes was due to the introduction of larger planes. Capacity was devoloping faster than the volume of traffic and the consequence was a decrease of the load factors of the new planes which had been introduced in those years. Wheatcroft quotes these findings of the Air Research Bureau. However, he adds, "the European route mileage has increased too rapidly. The overall traffic growth of the post war years has been very much greater than the increase in the average size of the airplanes used. Frequency of operations has suffered because the overall growth has been dissipated by an over-rapid development of the network of air services." (Page 57.)

However, Wheatcroft's response is not very plausible in this case, since the Air Research Bureau study shows that for ten high-density routes the load factor decreased on an average from 66 per cent to 60 per cent between 1951 and 1954; i.e., on ten sectors of more than 15 million passenger-miles in 1951.[2] It may be concluded that the average decrease of the load factor on these particular sectors cannot be the result of the over-extension of route mileage. This means simply that airline managements chose to operate larger planes rather than to increase frequencies. The same Air Research Bureau report indicates that average frequencies did not increase at all in the period considered. Wheatcroft's argument is that larger planes are more economical than smaller planes, but only once the desirable frequency is achieved. Under present conditions of air transport in Europe, it may seem a better policy to increase frequency, which is much lower than in the United States. Without losing sight of the necessary increase of the intensity of operations, flying larger planes is not the only solution.

In order to achieve all the favorable effects that a higher intensity of operations might bring, the traffic volume must increase greatly to fill larger planes. There is certainly a greater demand for travel between two cities 400 miles apart than between two cities 2000 miles apart. But on short distances, the saving of time achieved by air transport is not as important as on long distances, and, in order to compete with surface transport, air transport must offer fares which are not prohibitive. If the fares are too high, the public prefers to waste a little more time traveling, and to spend less money; this is true especially in Europe where the average income is much lower than in the United States. Under present conditions, larger planes cannot lower unit operating costs as much as would be necessary to offer fares competitive with surface transport on short distances. European airlines have been using large planes in recent years, such as the DC-6 and DC-6B, which have been designed for long-haul operations. All are fast, modern pressurized airplanes, with great passenger appeal. But these new planes are expensive, and they bear the burden of high depreciation costs. Wheatcroft stresses the need for a new, larger plane, especially designed for short hauls. Much as it is desired by all the short-haul airlines in the world, such a plane does not exist. So, at present, it is more feasible to increase frequencies than to increase the size of the plane. A small plane like the DC-3, designed for short hauls, could fly at higher frequency and

[2] *Intra European Air Passenger Traffic*, Air Research Bureau Report (1952-1954), p. 25.

with lower costs on short-hauls than a large plane designed for long hauls. Moreover, older planes like DC-3s do not have a depreciation rate comparable to newer and more expensive planes.

Wheatcroft sees the reduction of the level of operating costs as the only way to lower fares. The author makes a very complete description and study of the various items of costs which can be reduced in the years to come, comparing these costs to the American level. After efforts have been made to reduce costs, lowering of fares could result — a posteriori — from this policy. But, instead of considering the reduction of fares as a result, it could be used as a means to reduce costs, with the higher intensity of operations lower fares can bring. Under present conditions, "the dilemma of passenger fares in Europe is that they are still barely at a sufficiently low level to compete effectively with surface transport in the second class market, and yet with the standard of service which the airlines evidently consider essential to compete in this market, even the present level of fares is barely adequate for the economic self-sufficiency of local European services." (Page 170.) The author takes for granted that the airlines have to keep a high standard of service to compete with the second class market of the railways. But a new market can be created with a lower standard of service and a lower fare; this market would not compete with a market of high standard of service and higher fares. This is an entirely new field in which to develop air transport. Wheatcroft evokes this alternative as a possible future development. Some experiments were made in the United Kingdom and British overseas possessions and called "Colonial coach class." But the author does not investigate the possibility of introducing it in Europe. However, the general level of income being poor in Europe, it would seem more profitable to insist on the low fare aspect than on a high standard of service if more traffic is to develop. Wheatcroft recognizes that considerably lower fares could attract more traffic, but tourist fares have been introduced too recently to afford any basis for positive conclusion. The demand did not respond immediately on most of the sectors, but "it is entirely probable that the demand curve has an L shaped kink which is caused by the relationship between the air and second class fares, and if the air fare had been reduced considerably more, the demand would suddenly have become a good deal more elastic." (Page 119.)

An experiment was made by BEA between London and Glasgow in 1952; the fare went down 33 per cent during the winter, and the number of passengers went up 153 per cent. But the author recalls that it was an exceptional situation, the marginal costs there were low since the planes had to fly anyway to go to their maintenance base. "The difficulty that the airlines may face on other routes in Europe is that the fare level to which they must reduce in order to meet an elastic demand situation is below their present variable operating costs, and these set a lower limit to the reduction economically justified." (Page 119.) It may not be a sound policy to reject the idea of operating cheap, unpressurized planes like the DC-3 or the Viking, on the grounds that they would be in an unfavorable competitive position in comparison with modern and pressurized aircraft. In conclusion, larger planes cannot maintain adequate load factor at the present fares, and the operating costs are high. So the relation between revenues and costs is unfavorable and the airlines do not make money. Smaller, cheaper, unpressurized planes at higher frequencies could be operated at lower fares and attract more traffic. There is a great demand on some high density routes for a low fare even with a low standard of service. The competitive position of the planes in relation to surface transport is achieved by their greater speed, an advantage which can be felt beyond 300 miles. Wheatcroft proposes such a policy. "International Air Transport Association might be urged to devise a system of agreeing fares in which the airlines are left a

margin in the standards of service which they offer, but in which the variations in the standard of service are matched to differentials in the level of the fares which must be charged. This would give greater freedom to airline managements to decide the standard of service that they wished to provide and an even greater merit in encouraging a system which might offer the traveling public a greater choice in the matter of fares and comfort." (Page 267.)

The author devotes a whole chapter to the important problem of seasonal variations in Europe. The relationship between the lowest and the highest month is 1:2.5 in Europe, while in the United States, it is 1:1.4. These large seasonal variations seem to be a particular feature of European air transport, since in the case of BOAC whose network is not European, the relationship between the lowest and the highest month is comparable to the U. S. airlines.

Several policies are proposed, among which are the introduction of an aircraft adjustable to carry either passenger or cargo, a more flexible organization of the airline personnel and the possibility of exchanging equipment and personnel between airlines. The author makes a very strong point of discrimination which can be justified when it is based on cost factors. Since the marginal cost of running low period traffic is lower than the marginal operating cost of peak traffic, there is a justification for lower fares in the low period. There could be possible experiments of differential fares in the spring and autumn periods, when the elasticity of demand is likely to be more sympathetic to promotional fare reductions than in the winter. It appears to be an excellent proposal to try to spread the peak period over six months instead of the present three. In an air market subject to wide seasonal variations, smaller planes offer more flexibility permitting an increase in frequency and utilization of the planes at peak periods and a decrease in frequencies in the lowest month. Wheatcroft recognizes that if larger planes are to be used, it will be necessary to improve the handling of seasonal variations.

In the different fields of airline cooperation the author recommends investment planning among the different airlines in Europe. Such an agreement would involve a great deal of cooperation which might make competition disappear, if it succeeded too well. The decisions concerning the number and composition of fleets are a fundamental responsibility of the managements—the essential aspect of the "entrepreneurial function." It may be a step too far to regulate this activity, since even in the United States the Civil Aeronautics Board does not intervene in this field. But Wheatcroft supports it by saying that it will permit a diminution of other restrictions which are currently imposed upon European air transport. The proposal is to regulate competition at the point of investment programs rather than at the point of frequencies, standards of service and fares. Such investment planning would have a further advantage in the cost reductions that it would permit in maintenance, setting up joint technical facilities and enabling the operation of through services by means of equipment exchanges. The difficult point is to know how this could be worked out in an acceptable manner. Wheatcroft stresses that it will be of principal benefit to the small airlines, and they are the ones which restrict competition in other fields. If there were such investment planning, small airlines would be led to reduce the restrictions which impede air traffic on many sectors. This is certainly a very strong point, but it may be asked whether it would be very hard to make governments and airlines agree on this general planning. The solution sounds efficient, but it involves many political problems, and the probable delays in organizing it may be discouraging when one considers the time it takes to achieve European cooperation in other fields.

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